STP ENGINEERING REPORT REVIEW LIST

DESIGN FLOW: Use SCDHS Design Flow Numbers.

- Calculate Population Equivalent (PE)
  75 gpd/person
- Calculate Peak Flow Factor (PF) as per Ten State Standard.
  $PF = \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$ P = Population/1000
- PF is used to size Influent Pumps to plant from Influent Pump Station (minimum 2 Pumps).
- Influent S.S. Concentration 320 mg/l (0.20#/day/PE).
- Influent BOD Concentration 272 mg/l (0.17#/day/PE).
- Influent Total Nitrogen 60 mg/l.

EQ TANK: Sized to hold minimum 20% of ADF (Average Daily Flow). Ideally sized to 25-30%. Divide tank into 2 sections with connecting pipe (min 12"Ø) with valve.

STATIC SCREEN: Influent Pumps to pass flow thru screen situated above sludge holding tank. Screen must be rated to handle both influent pumps in operation. Screen must be all S.S. construction and screen openings must be 60 mil (0.06 in.)

SBR TANKS: Minimum of 2. 3:1 length to width ration. Sized for 24 hr. retention at Low Water Level. LWL minimum 10' (ideally 12'). Minimum 18" Freeboard ht. – (ideally 2'). Cycle time min. 4.8 hrs. during normal operation for 5 cycles/day/tank. 4 hr. cycle time during storm flow condition for 6 cycles/day/tank. HWL to LWL depth determined by processing 1.7 ADF w/one tank out of service – 4 hr. cycle.

DECANTER WEIR: Length determined by Volume needed to decant over 45 minute period (45 minutes is during storm mode – 60 minutes normal operation). Allowable rate over Weir is 20 cf/min/L ft. of length. Decant volume is HWL – LWL (usually between 3' to 5').

SLUDGE HOLDING TANKS: Minimum 2, sized to hold sludge between 15 and 30 days (ideally 30 days). Sludge content in wasted sludge from SBR tanks is 1 to 2 % (usually 1 %).

- Sludge wasting pumps sized to handle sludge produced/cycle within ten minutes.
- Sludge supernatant decant pumps sized to pump 90% of sludge tank within 60 minutes. Sludge tank decant must be piped back through static screen.

INTERMEDIATE EQ TANK: Minimum 2 pumps used to hold SBR tank effluent before pumping to final filters (polishing filters).

- Final filters are not required but are used to increase leaching rate from 5gpd/sf to 10 gpd/sf. Minimum 2 filters. Each filter must be sized to handle flow from intermediate EQ Tank Pump at a loading rate of 5 gpm/sf (if sand filters used). If filters are continuous backwash, then a float switch (or equivalent) must be installed to shut down when no forward flow. Filter must be all S.S. construction. Purestream or ABS microfilters are allowed in place of sand filters.

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EFFLUENT EQ TANK: Only needed if gravity flow from filters cannot be achieved. Minimum 2 pumps. Must handle max flow from filters.

LEACHING FIELD: Ideally open beds. Not usually used because of NYS set back requirements. DPW requires shallow pools (4' effluent depth – 6.5 max depth) at 200% of ADF if beds cannot be used. If plant has final filters – leaching rate is 10gpd/sf sidewall area – no filters, 5gpd/sf sidewall area. Pools are installed in rows (ideally 10 pools/row) with connecting pipes. Pool rings can abut each other. 8' minimum between rows. See Leaching Pool Standard.

AIR REQUIREMENT: EQ Tank, Sludge Tanks, SBR Tanks. Follow Ten State Standards on design of blowers and minimum air.

GENERAL: Provide an overall hydraulic profile and site plan. Site must include property tax map boundaries, access road, fencing around entire site, 100% plant expansion area, 200' radius from STP to buildings and 150' radius from STP to property line and 25' buffer from pools/beds to property line.

GENERATOR: Sized to handle full plant load with 3 day fuel supply. (Ideally natural gas, then propane, then diesel.)

INFLUENT PUMP STATION:

- See Pump Station Design Checklist (Building and Generator not required).
- PF used to size pumps
- 2 pumps minimum (both sized for PF)

LISTING OF REQUIRED PERMITS:

- Building Permit
- Fire Marshall
- SCDHS Article 12 Compliance
- SCDEC
- NYSDOT
- Any additional permits required by local town, county, state or federal agencies

Revised 1-10-13